(12) UK Patent Application (19) GB (11) 2 245 749 (13) A

(43) Date of A publication 08.01.1992

(21) Application No 9111430.6

(22) Date of filing 28.05.1991

(30) Priority data
(31) 02136524 (32) 25.05.1990 (33) JP

(71) Applicant
Asahi Kogaku Kogyo Kabushiki Kaisha

(Incorporated in Japan)

2-36-9, Maenocho 2-chome, Itabashi-ku, Tokyo, Japan

(72) Inventor
Kimiaki Ogawa

(74) Agent and/or Address for Service
Ablett Associates
2 Tile Kiln Lane, Highgate, London, N6 5LG,
United Kingdom

(51) INT CL[5]
G11B 21/08 27/034, H04N 1/21

(52) UK CL (Edition K)
G5R RB347 RB36Y RB56X RB721 RB77Y RB784 RB788 RGA RHD

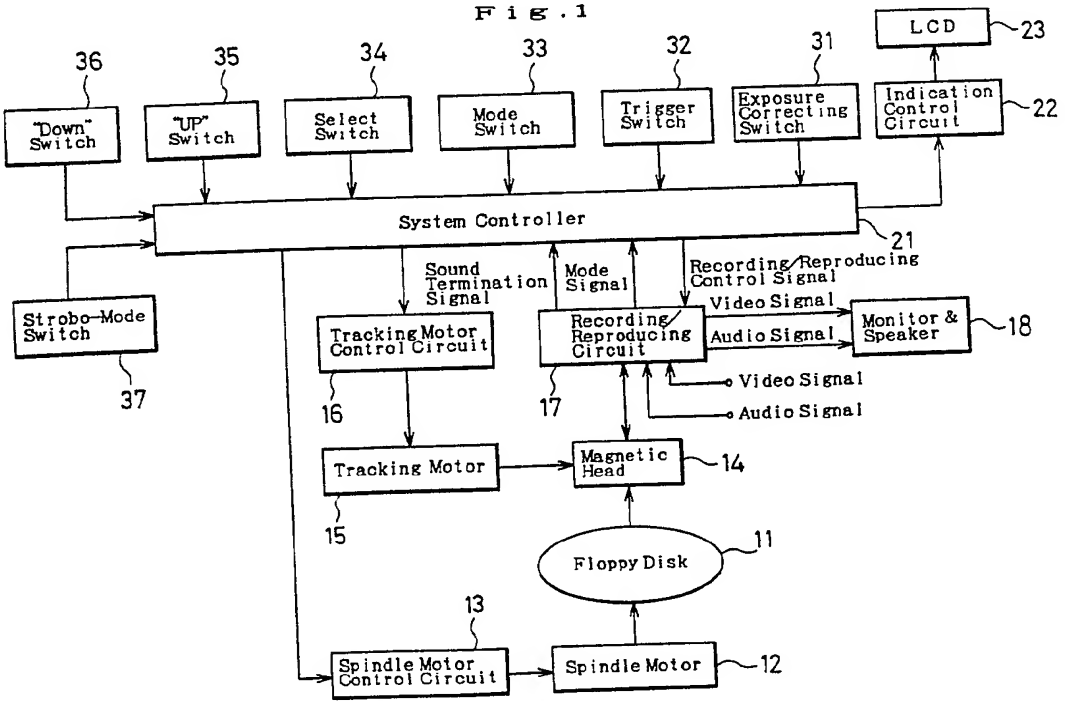
(56) Documents cited
WO 87/06756 A1 WO 86/01667 A1 WO 86/01631 A1
WO 86/01619 A1

(58) Field of search
UK CL (Edition K) G5R RAB RGA RHD RHE RKF RKH, H4F FDC
INT CL[5] G03B, G11B, H04N

(54) Still video device

(57) A still video device is disclosed which includes a magnetic head (14) for reproducing a signal recorded in a floppy disk (11), a first switch (31) operated for commanding a successive reproduction mode, and a second switch (34) for designating a kind of signal to be reproduced. The successive reproduction mode is set by the first switch (31) so that only a video signal, an audio signal, or a combination of the video signal and the audio signal, is successfully reproduced from a series of tracks. The signal to be reproduced is determined by the second switch (34). The first switch (31) may be an exposure correcting switch (31) provided for correcting an exposure. The second switch may be a select switch (34) provided for selecting an operation mode of the still video device such as recording, reproduction, and erasing.

Fig.1



GB 2 245 749 A

Fig. 1

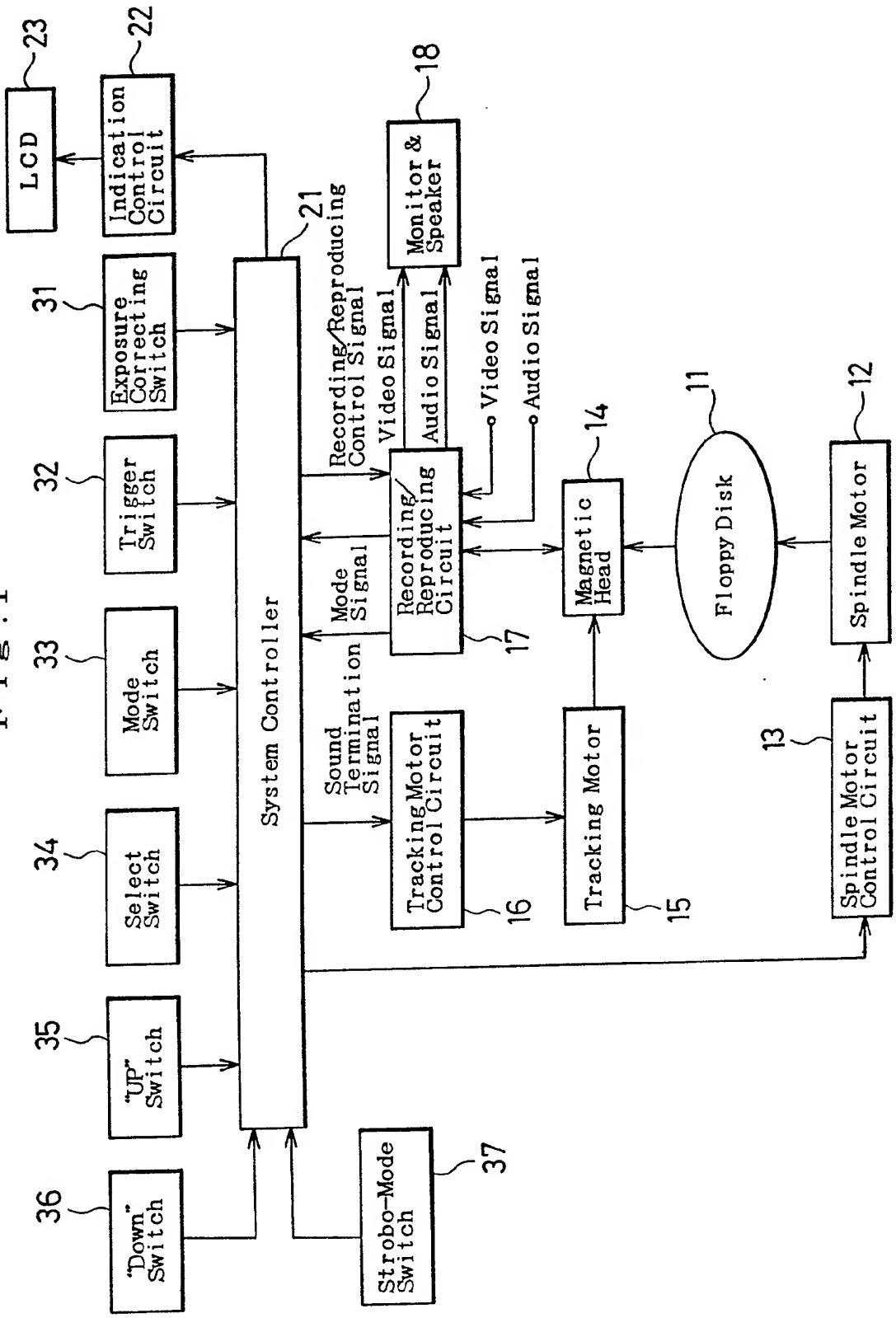
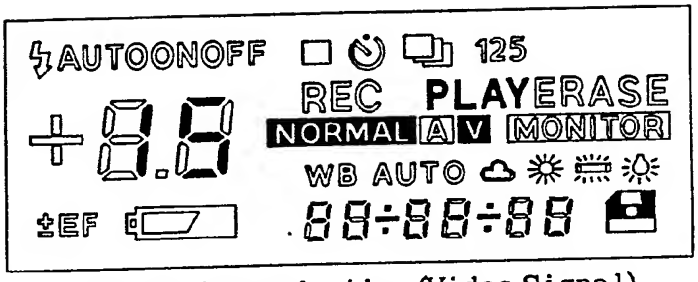
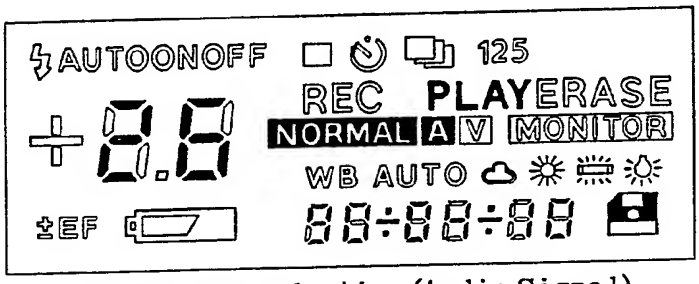

LCD
23
Indication Control Circuit
22
Exposure Correcting Switch
31
Trigger Switch
32
Mode Switch
33
Select Switch
34
"UP" Switch
35
"Down" Switch
36
Strobo-Mode Switch
37
System Controller
21
Recording/Reproducing Control Signal
Video Signal
Audio Signal
Monitor & Speaker
18
Video Signal
Audio Signal
Mode Signal
Recording/Reproducing Circuit
17
Sound Termination Signal
Tracking Motor Control Circuit
16
Tracking Motor
15
Magnetic Head
14
Floppy Disk
11
Spindle Motor
12
Spindle Motor Control Circuit
13

Fig.2A



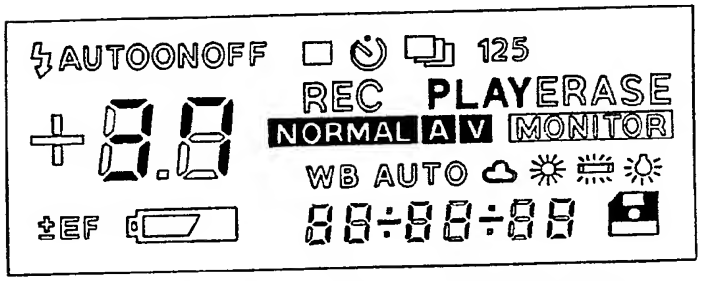
Normal Reproduction (Video Signal)

Fig.2B



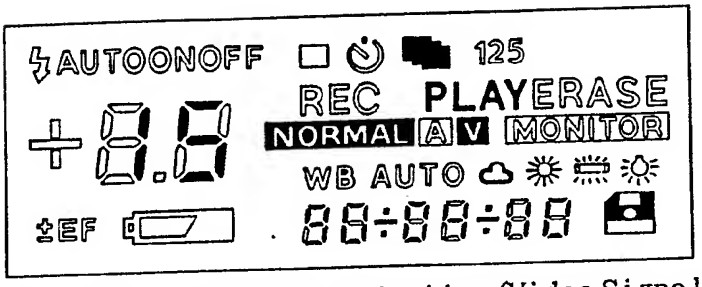
Normal Reproduction (Audio Signal)

Fig.2C



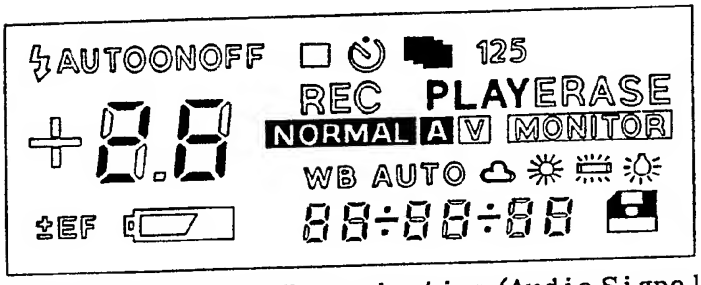
Normal Reproduction (AV Signal)

Fig.2D



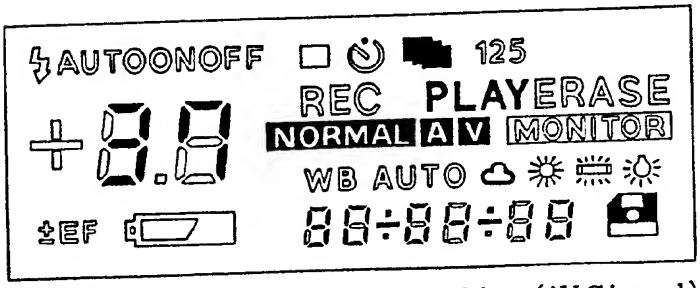
Normal Successive Reproduction (Video Signal)

Fig.2E



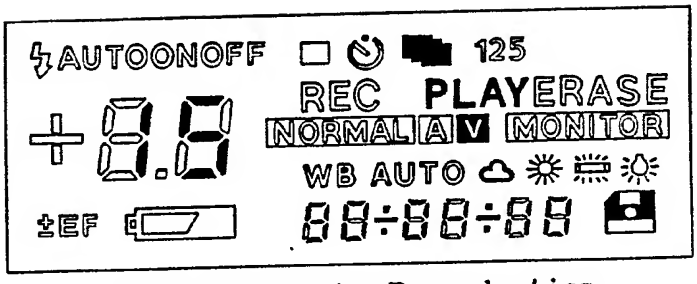
Normal Successive Reproduction (Audio Signal)

Fig.2F



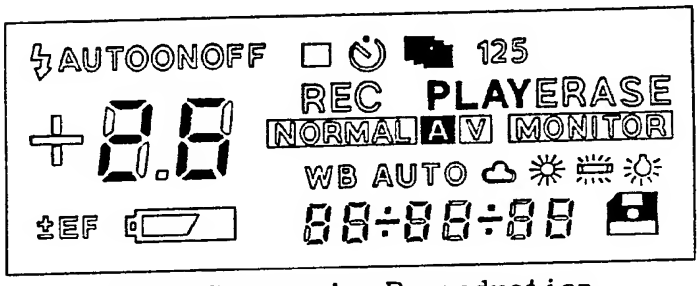
Normal Successive Reproduction (AV Signal)

Fig.2G



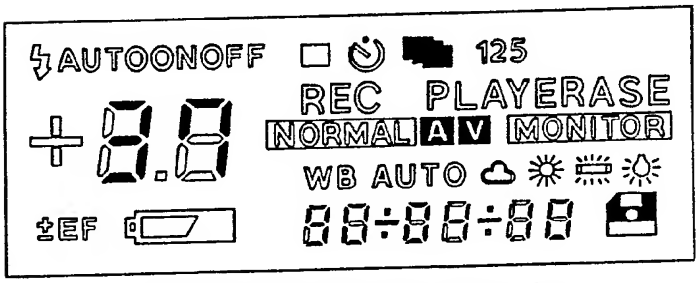
Video Successive Reproduction

Fig.2H



Audio Successive Reproduction

Fig.2I



AV Successive Reproduction

Fig.3A

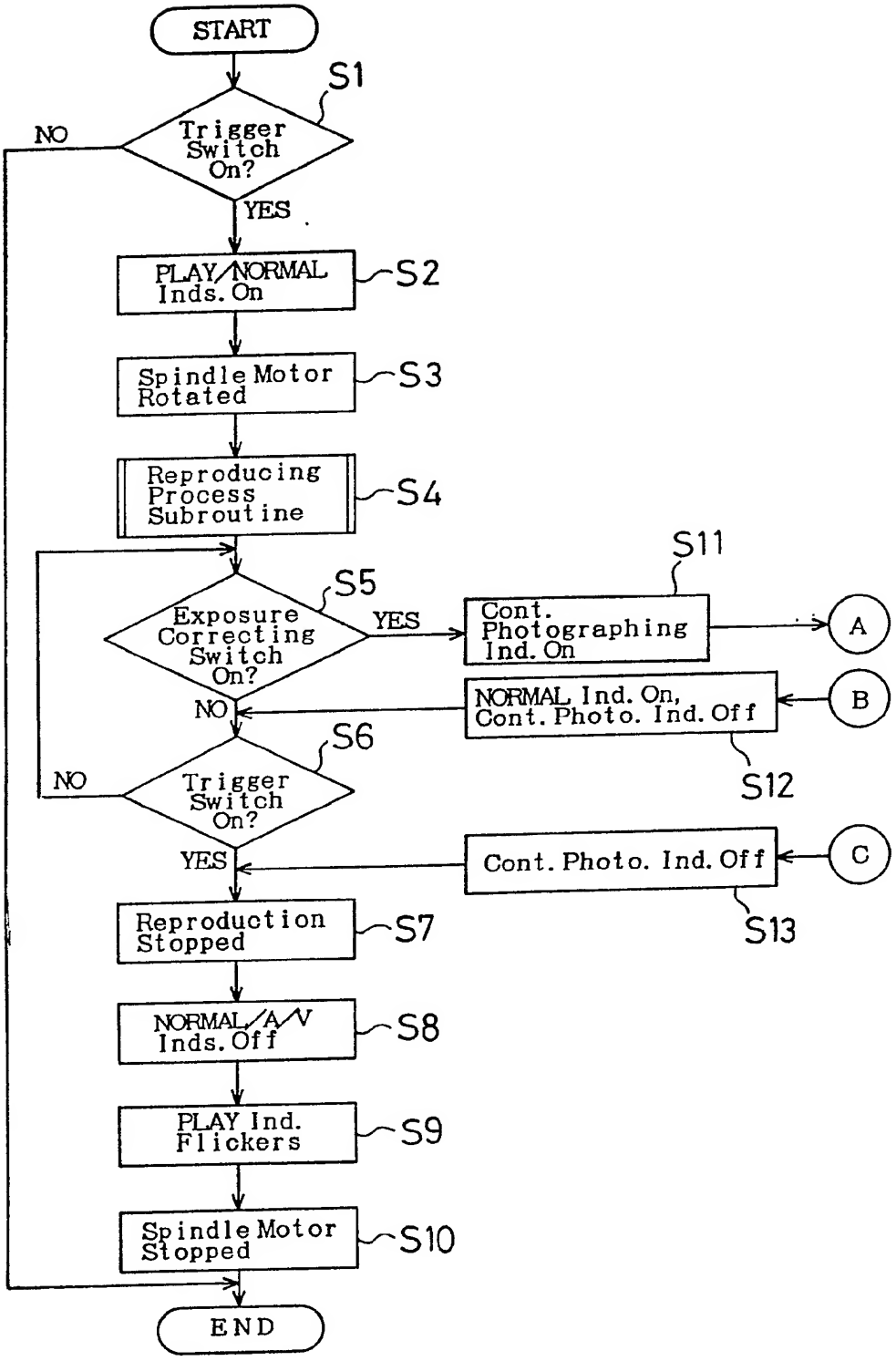

START
S1
Trigger Switch On?
NO
YES
PLAY/NORMAL Inds. On
S2
Spindle Motor Rotated
S3
Reproducing Process Subroutine
S4
S5
Exposure Correcting Switch On?
YES
S11
Cont. Photographing Ind. On
A
NORMAL Ind. On, Cont. Photo. Ind. Off
B
S12
NO
S6
Trigger Switch On?
NO
YES
Cont. Photo. Ind. Off
C
S13
Reproduction Stopped
S7
NORMAL/A/V Inds. Off
S8
PLAY Ind. Flickers
S9
Spindle Motor Stopped
S10
END

Fig.3B

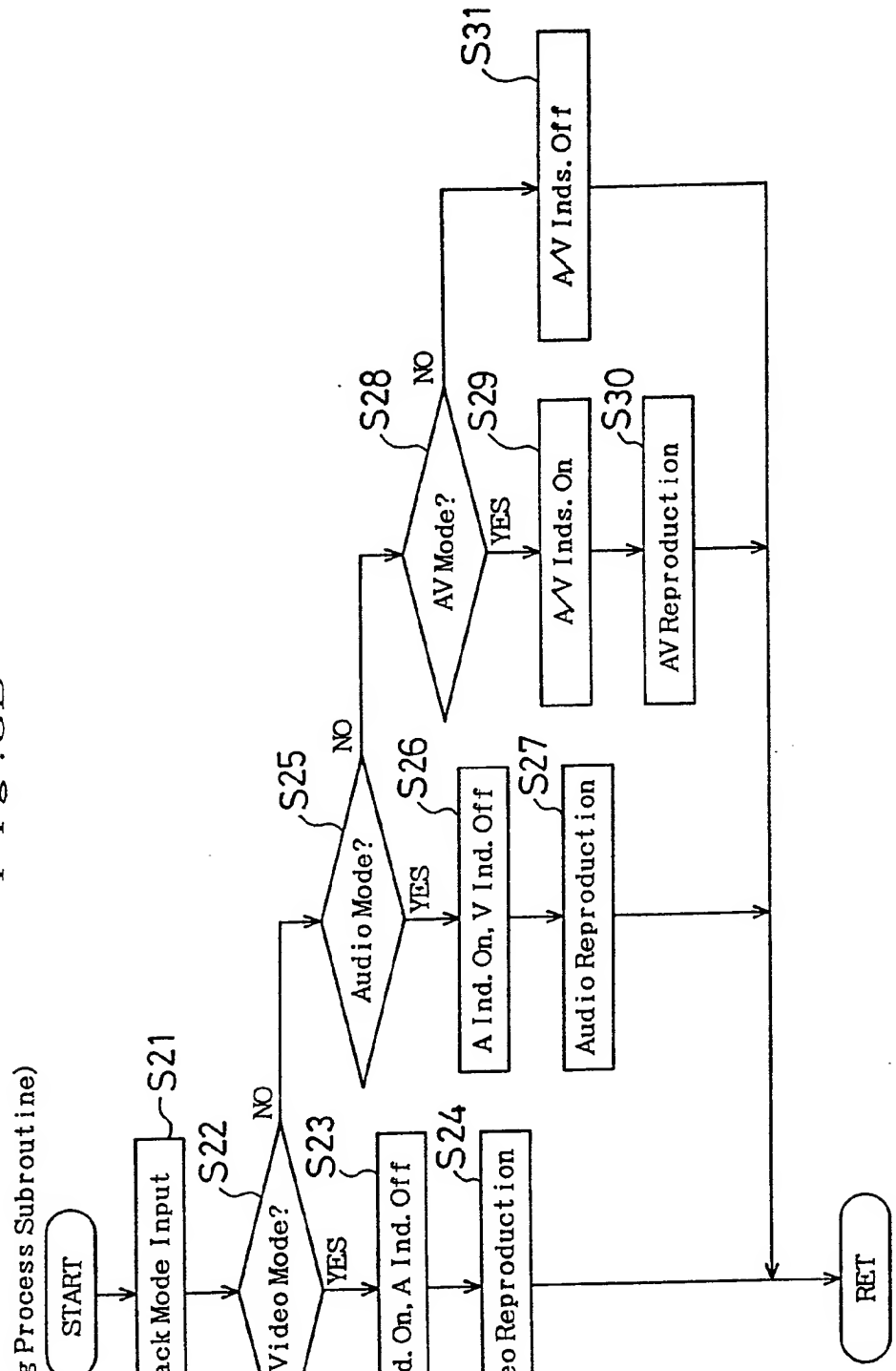

(Reproducing Process Subroutine)
START
Track Mode Input
S21
Video Mode?
S22
YES
NO
V Ind. On, A Ind. Off
S23
Video Reproduction
S24
Audio Mode?
S25
YES
NO
A Ind. On, V Ind. Off
S26
Audio Reproduction
S27
AV Mode?
S28
YES
NO
A/V Inds. On
S29
AV Reproduction
S30
A/V Inds. Off
S31
RET

Fig.3C

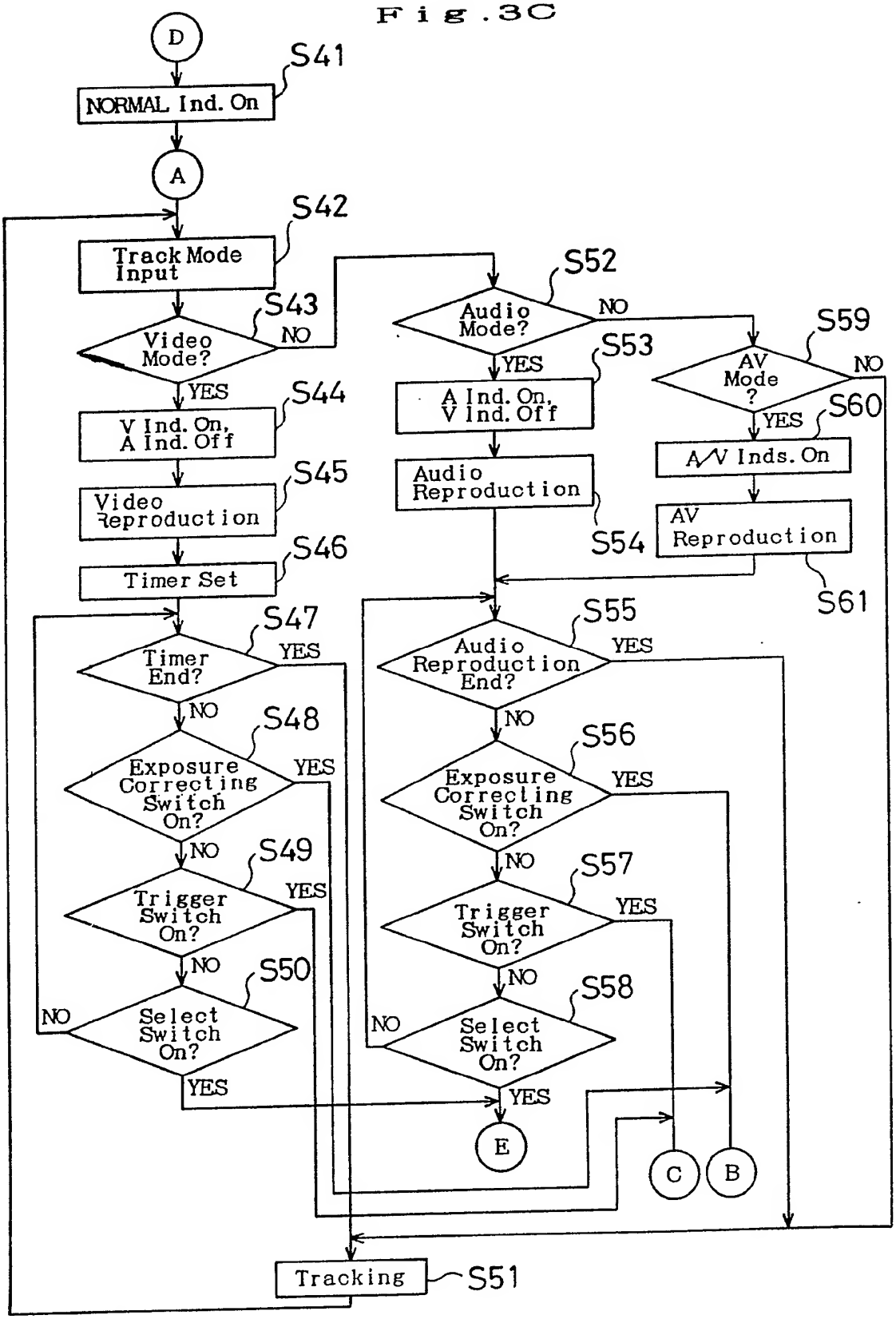
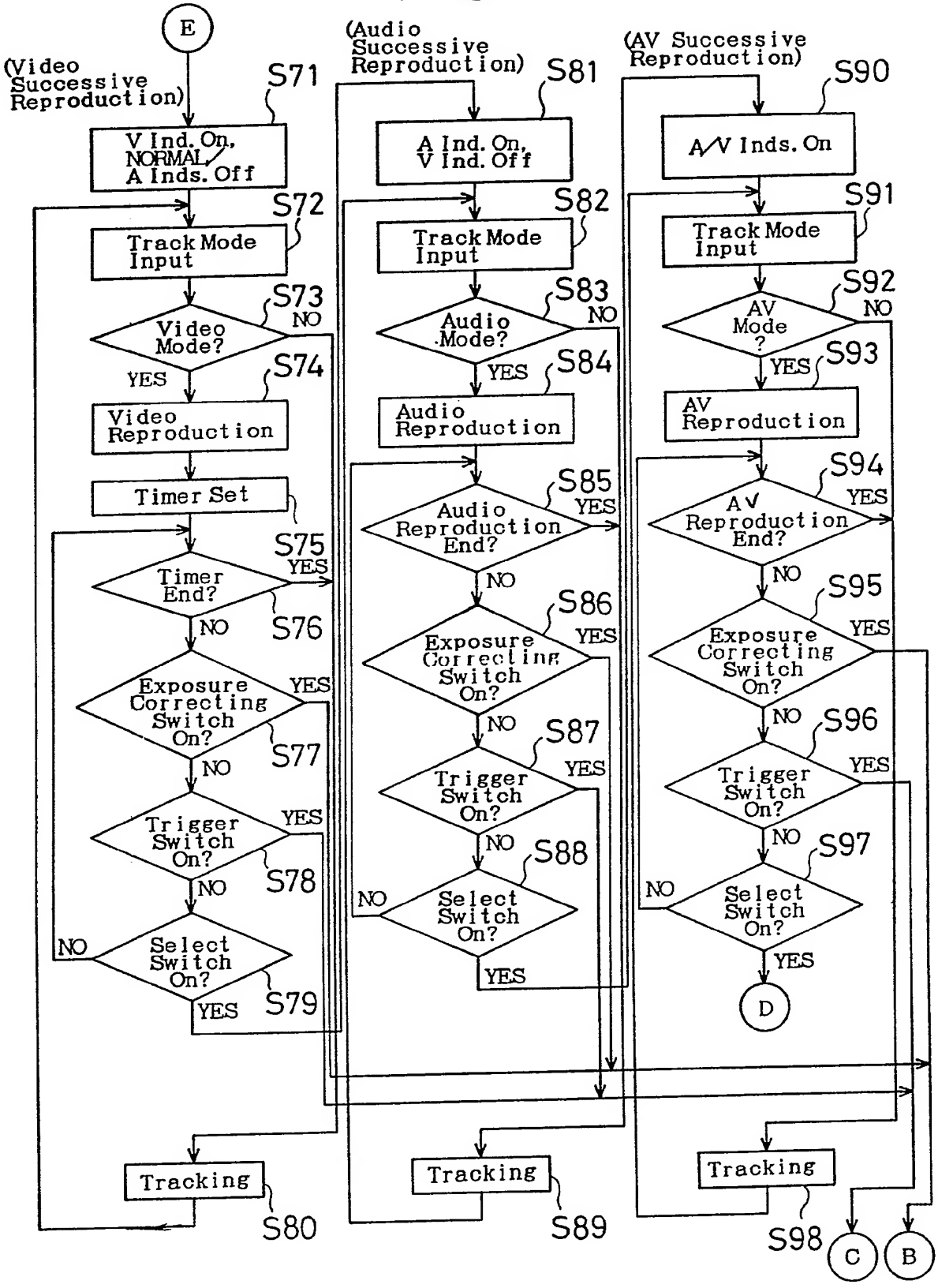

D
S41
NORMAL Ind. On
A
S42
Track Mode Input
S43
Video Mode?
NO
YES
S44
V Ind. On, A Ind. Off
S45
Video Reproduction
S46
Timer Set
S47
Timer End?
YES
NO
S48
Exposure Correcting Switch On?
YES
NO
S49
Trigger Switch On?
YES
NO
S50
Select Switch On?
NO
YES
S52
Audio Mode?
NO
YES
S53
A Ind. On, V Ind. Off
Audio Reproduction
S54
S59
AV Mode ?
NO
YES
S60
A/V Inds. On
AV Reproduction
S61
S55
Audio Reproduction End?
YES
NO
S56
Exposure Correcting Switch On?
YES
NO
S57
Trigger Switch On?
YES
NO
S58
Select Switch On?
NO
YES
E
C
B
Tracking
S51

Fig.3D


E
(Video Successive Reproduction)
S71
V Ind. On, NORMAL, A Inds. Off
S72
Track Mode Input
S73
Video Mode?
NO
YES
S74
Video Reproduction
Timer Set
S75
Timer End?
YES
NO
S76
Exposure Correcting Switch On?
YES
S77
NO
Trigger Switch On?
YES
S78
NO
Select Switch On?
NO
YES
S79
Tracking
S80
(Audio Successive Reproduction)
S81
A Ind. On, V Ind. Off
S82
Track Mode Input
S83
Audio Mode?
NO
YES
S84
Audio Reproduction
S85
Audio Reproduction End?
YES
NO
S86
Exposure Correcting Switch On?
YES
NO
S87
Trigger Switch On?
YES
NO
S88
NO
Select Switch On?
YES
Tracking
S89
(AV Successive Reproduction)
S90
A/V Inds. On
S91
Track Mode Input
S92
AV Mode ?
NO
YES
S93
AV Reproduction
S94
AV Reproduction End?
YES
NO
S95
Exposure Correcting Switch On?
YES
NO
S96
Trigger Switch On?
YES
NO
S97
NO
Select Switch On?
YES
D
Tracking
S98
C
B

STILL VIDEO DEVICE

The present invention relates to a still video device by which a video signal and/or an audio signal are recorded in a magnetic disk, and these signals are reproduced.

In a still video device, generally, a magnetic disk is used as a recording medium for storing a video signal and/or an audio signal. The magnetic disk is provided with a plurality of tracks concentrically formed on the magnetic disk, and the video signal and the audio signal are each recorded on a different track.

Thereafter, in a conventional still video device, the signals recorded on each of the tracks are reproduced track by track.

As described above, a conventional still video device reproduces a signal stored in each track, one by one, i.e., cannot successively reproduce more than one track. Accordingly, when a plurality of tracks are to be reproduced, a reproducing operation in which each track is reproduced one by one must be repeated. Therefore, when the user wishes to reproduce only a video signal or an audio signal, such a reproducing operation must be carried out track by track, which is cumbersome.

Therefore, an object of the present invention is to provide a still video device in which a plurality of tracks storing only a predetermined kind of signal can be reproduced.

According to the present invention, there is provided a still

video device in which a recording medium is mountable, the recording medium having a plurality of tracks in which different kinds of signal can be stored, the still video device comprising reproducing means for reproducing a signal recorded in a predetermined track of the recording medium, command means for commanding a successive reproduction mode in which tracks storing the same kind of signal are successively reproduced, designating means for designating what kind of signal recorded in the recording medium is to be reproduced, and control means for controlling the reproducing means so that, when the successive reproduction mode is commanded by the command means, the reproducing means successively reproduces a plurality of tracks storing a kind of signal designated by the designating means.

According to another aspect of the present invention, there is provided a still video device comprising a disk in which a kind of signal recorded in each track is different, a reproducing means for reproducing a signal recorded in the disk, moving means for moving the reproducing means to a predetermined track of the disk, a first switch operable to command a successive reproduction mode in which several tracks of the disk are successively reproduced, a second switch operable to designate the kind of signal recorded in the disk to be reproduced, and control means for controlling the moving means so that, when the successive reproduction mode is commanded by the first switch, the reproducing means is successively positioned at a plurality of tracks in which a kind of signal designated by the second switch is recorded.

According to a further aspect of the present invention, there is provided a still video device in which a disk is mounted, the disk having tracks in which different kinds of signal can be stored, respectively, the signal being reproduced by a head provided in the device, and the head being moved to a position at a predetermined

track of the disk to thereby reproduce the signal, the still video device comprising

a first switch operable to command a successive reproduction mode in which several tracks of the disk are successively reproduced, a second switch operable to designate the kind of signal recorded in the disk to be reproduced, and a moving means for moving the head so that, when the successive reproduction mode is commanded by the first switch, the head is successively positioned at predetermined tracks, whereby only the predetermined signals designated by the second switch are reproduced.

The present invention will be better understood from the description of the preferred embodiments of the invention set forth below, together with the accompanying drawings, in which:

Figure 1 is a block diagram showing the construction of an embodiment of a still video device embodying the present invention;

Figure 2A is a view showing an indication by an LCD in a normal reproducing operation for a video signal;

Figure 2B is a view showing an indication by the LCD in the normal reproducing operation for an audio signal;

Figure 2C is a view showing an indication by the LCD in the normal reproducing operation for a video signal and an audio signal which form a pair;

Figure 2D is a view showing an indication by the LCD in a normal successive reproducing operation for a video signal;

Figure 2E is a view showing an indication by the LCD in the normal successive reproducing operation for an audio signal;

Figure 2F is a view showing an indication by the LCD in the normal successive reproducing operation for a video signal and an audio signal, which form a pair;

Figure 2G is a view showing an indication by the LCD in a successive reproducing operation for a video signal;

Figure 2H is a view showing an indication by the LCD in the successive reproducing operation for an audio signal;

Figure 2I is a view showing an indication by the LCD in the successive reproducing operation for a video signal and an audio signal, which form a pair;

Figure 3A is a flowchart showing a reproducing operation;

Figure 3B is a flowchart showing a reproducting process subroutine;

Figure 3C is a flowchart showing the normal successive reproducting operation; and

Figure 3D is a flowchart showing video, audio, and AV successive reproducing operations.

The present invention will now be described with reference to embodiments shown in the drawings.

Figure 1 is a block diagram showing an arrangement of an embodiment of a still video device of the present invention.

A floppy disk, i.e., a magnetic disk 11, is used as a recording medium of this still video device, and is provided with a plurality of tracks concentrically formed thereon. A video signal and an audio signal are each recorded in a different track.

The floppy disk 11 is rotated by a spindle motor 12 controlled by a spindle motor control circuit 13. A magnetic head 14 is moved radially over the floppy disk 11 by a tracking motor 15 controlled by a tracking motor control circuit 16, to be thereby positioned at a predetermined track of the floppy disk 11, whereby a recording-reproducing circuit 17 is able to record a desired video signal or audio signal onto the track, or reproduce the video signal or audio signal. A monitor and speaker 18 are connected to the recording-

reproducing circuit 17 for outputting an image and sound.

A system controller 21 comprising, for example, a microcomputer, controls the tracking motor control circuit 16, the recording-reproducing circuit 17, and an indication control circuit 22 so that an LCD (Liquid Crystal Display) 23 indicates predetermined information. In addition to these controls, the system controller 21 controls the operations by which information is recorded in the floppy disk 11, information stored in the disk 11 is reproduced, and information is deleted from the disk 11.

A trigger switch, i.e., a release switch 32, an exposure correcting switch 31, a mode switch 33, a select switch 34, an "up" switch 35, a "down" switch 36, and a strobo-mode switch 37 are connected to the system controller 21. The trigger switch 32 is operated when starting and finishing the recording of a reproduction. The exposure correcting switch 31 is operated to carry out an exposure correction. The mode switch 33 and the select switch 34 are operated to select and set various modes such as recording, reproduction, and erasing. The up switch 35 and the down switch 36 are operated to increment and decrement a numeral indicated by the LCD 23. The strobo-mode switch 37 is operated to input a predetermined strobo-mode to the system controller 21.

The operation of the embodiment is described below with reference to Figures 2A through 2I, which show examples of the indications by the LCD 23.

As shown in these drawings, various indications are made by the LCD 23. Further, a flicker position of each indication is changed in a vertical direction by the operation of the mode switch 33, and in a horizontal direction by the operation of the select switch 34.

For example, whenever the mode switch 33 is operated, a flickering indication is positioned sequentially at any one of a single mode indication (a rectangular indication in the drawings)

denoting a mode for recording one frame image, a "REC" indication denoting a recording mode, a "NORMAL" indication denoting a normal mode, an "AUTO" indication of a white balance symbol "WB", and a 7-segment element displaying digits denoting a year, month and day, or hour, minutes and seconds.

Two kinds of normal modes exist. In the normal mode the recording or reproduction of a video signal or an audio signal is carried out track by track, or the recording or reproduction of a video signal and an audio signal (an AV signal), which form a pair, is carried out for a pair of tracks provided for these signals. In the normal successive recording/reproduction mode, regardless of the distinction between an audio signal, a video signal, and an AV signal, the recording or reproduction is carried our sequentially for a plurality of tracks.

For example, where the single mode indication, located at the first line in the drawings, is caused to flicker, when the select switch 34 is operated, a self timer indication (a clock face in the drawings) for setting a self timer, a continuous photographing indication (shown in the drawings by three overlapping rectangles) showing a mode in which one, two, or five frame images are recorded per second, and digits "1", "2", and "5" showing the selected number of continuous photographing operations per second, are caused to flicker.

In the same way as described above, in an indication in the second line, "REC" denoting a recording mode, "PLAY" denoting a reproduction mode, and "ERASE" denoting an erasing mode, are selectively and sequentially indicated.

In the third line in the drawings, "NORMAL" denoting the normal mode as described above, "A" denoting an audio mode in which an audio signal is recorded or reproduced, and "V" denoting a video mode in which a video signal is recorded or reproduced, are selectively indicated. In an "AV" mode in which a video signal and an audio signal, which form a pair, are recorded or reproduced, both

"A" and "V" are indicated.

In a "WB" indication of the white balance shown in the fourth line in the drawings, "AUTO" denoting the automatic mode, a Cloud indication (shown by a reproduction of a cloud in the drawings) denoting a cloudy weather mode, a Fine indication (shown by a reproduction of the sun in the drawings) denoting a fine weather mode, a Fluorescent Lamp indication (shown by a reproduction of a fluorescent lamp in the drawings) denoting a fluorescent lamp mode, and an Incandescent Lamp indication (shown by a reproduction of an incandescent lamp in the drawings) denoting an incandescent lamp, are sequentially selected.

In the fifth line in the drawings, numerals denoting a date (or a time) are sequentially selected.

Note that an indication located to the left of the date shows the state of a battery, and is caused to flicker when the voltage of the battery is low. An indication located to the right of the date shows the state of a disk, i.e., shows whether or not a floppy disk is mounted in the still video device, and is always turned ON when a disk is mounted in the device.

Accordingly, by operating the mode switch 33 and the select switch 34, a flickering position is moved, whereby a command for a mode indicated by the flickering position is sent to the system controller 21. Note, an indication other than the mode which is selected is changed from a flickering condition to a steady light condition.

The operation of the strobo-mode switch 37 causes the "AUTO" indication, the "ON" indication, and the "OFF" indication to be sequentially lit.

When the recording mode is designated (whereby the "REC" indication is caused to flicker) and the trigger switch 32 is operated, the system controller 21 drives the spindle motor 12

through the spindle motor control circuit 13, and thus the floppy disk 11 is rotated. At the same time, the tracking motor 15 is driven through the tracking motor control circuit 16, and thus the magnetic head 14 is moved to a predetermined position of the tracks. The track position (i.e., the track number) is indicated by a double-digit at the left of the "REC" indication. Thereafter, a predetermined video or audio signal is inputted to the magnetic head 14 through the recording-reproducing circuit 17, and thus the signal is recorded in the predetermined track of the floppy disk 11.

The recording-reproducing circuit 17 generates a code signal (a DPSK signal or a control code which are described later) in accordance with a control signal outputted by the system controller 21, and supplies the code signal together with a predetermined video signal or audio signal to the magnetic head 14. These signals are then recorded in the predetermined track of the floppy disk 14. The code signal includes the track number, the recording mode and so on as a DPSK signal when a video signal is recorded in the floppy disk, and includes them as a control code when an audio signal is recorded in the floppy disk. When a recording is carried out in the AV mode, information denoting that the corresponding audio signal exists is included in the DPSK signal, or information denoting that the corresponding video signal exists is included in the control code. In this embodiment, an audio signal is recorded in an adjacent track which is positioned inward of a track in which the corresponding video signal is recorded.

Prior to this recording operation, when the exposure correcting switch 31 is operated during the recording mode, an exposure correcting indication "±EF" is caused to flicker, and an indication of the 7-segment element at the right of the exposure correcting indication is changed to an exposure correcting value designated at that time. When the up switch 35 or the down switch 36 is operated while the exposure correcting switch 31 is operated, the exposure correcting value is incremented or decremented. Then, when the exposure correcting switch 31 and the trigger switch 32 are operated at the same time, a photographing operation is carried out

in a state in which the exposure is set to the correct value.

In the recording mode, if the continuous photographing mode is set, the continuous photographing indication is lit and a numeral corresponding to the selected number of frames per second, among "1", "2", "5", is caused to flicker. In this state, when the trigger switch 32 is operated, video signals of the selected numbers of frames per second are continuously recorded.

A reproducing operation is described below with reference to flowcharts shown in Figures 3A through 3D.

When the reproduction mode is set by the operation of the mode switch 33 and the select switch 34, the "PLAY" indication is caused to flicker. In this state, if the trigger switch 32 is operated (step S1), the "PLAY" indication and the "NORMAL" indication are lit (step S2), the floppy disk 11 is rotated by the spindle motor 12 (step S3), and a reproducing process subroutine is carried out (step S4).

The reproducing process subroutine is described below with reference to the flowchart shown in Figure 3B.

In this subroutine, first a track mode in which a signal is stored in a reproduced track is inputted from the recording/reproducing circuit 17 to the system controller 21 (step S21). This system controller 21 reads information which denotes whether the track is storing only a video signal (a video mode) or only an audio signal (an audio mode), or whether the track is storing a video signal and an audio signal, which form a pair (an AV mode), through the recording/reproducing circuit 17, in accordance with a DPSK (differential-phase-shift-keying) signal or control data.

When the track mode of the reproduced track is the video mode (step S22), as shown in Figure 2A, the "V" indication is lit and the "A" indication is extinguished (step S23). Then, a video signal is

read by the magnetic head 14, which is moved to the track by the tracking motor 15 under the control of the tracking motor control circuit 16, and thus the recording/reproducing circuit 17 supplies the video signal to the monitor and speaker 18 as it is, whereby reproduction of the video signal is carried out (step S24).

When the track mode of the reproduced track is the audio mode (step S25), as shown in Figure 2B, the "A" indication is lit and the "V" indication is extinguished (step S26). Then, an audio signal is read by the magnetic head 14, which is moved to the track by the tracking motor 15 under the control of the tracking motor control circuit 16, and this audio signal is stored in a memory of the recording/reproducing circuit 17 and then read to be thus reproduced (step S27).

When the track mode is the AV mode (step S28), as shown in Figure 2C, the "A" and the "V" indications are lit (step S29). Then, the magnetic head 14 is moved by the tracking motor control circuit 16 and the tracking motor 15 to an adjacent track, which is located inward from the previous track, and in which an audio signal is recorded. Thereafter, the track is reproduced, and thus the reproduced audio signal is compressed, i.e., the signal recording period is shortened, and stored in a memory housed in the recording/reproducing circuit 17. Then, the magnetic head 14 is moved to (or returned to) the track in which a video signal corresponding to the audio signal is recorded, and thus the video signal stored in the track is reproduced. This reproduced video signal is supplied to the monitor and speaker 18, and indicated by the monitor. At this time, the audio signal stored in the memory is expanded to the original period thereof and reproduced, and then outputted to the monitor and speaker 18. As described above, in this embodiment, an audio signal is recorded in an adjacent track positioned inward of a track in which the corresponding video signal is recorded.

Accordingly, the video signal and the audio signal corresponding to the video signal, are outputted at the same time

(step S30).

Note, when the track is not storing a video signal or an audio signal, the "A" and "V" indications are extinguished (step S31).

During such a reproducing operation, if the exposure correcting switch 31 is not operated, a check of whether or not the exposure correcting switch 31 has been operated is repeated until the trigger switch 32 is again operated, whereby a command to stop the reproduction is sent (steps S5 and S6). Note, in this embodiment, the exposure correcting switch 31 is also used for commanding a successive reproduction mode, as described later.

When the trigger switch 32 is again operated to command an end of the reproduction (step S7), rotation of the floppy disk 11 is stopped, and the "NORMAL", "A", and "V" indications are extinguished (step S8). Then, the "PLAY" indication, which is steadily lit, is caused to flicker (step S9), and the still video device is returned to a condition of waiting for a reproduction to be carried out, and further, the spindle motor 12 is stopped (step S10).

As described above, reproduction of one track or only a pair of tracks is carried out.

Conversely, when the exposure correcting switch 31 is operated during a reproducing operation (step S5), the continuous photographing indication is lit (step S11), and the track mode, in which a reproduced track stores a signal, is inputted from the recording/reproducing circuit 17 to the system controller 21 (step S42 in Figure 3C). When it is determined that the track mode is the video mode, the "V" indication is lit and the "A" indication is extinguished (step S44) as shown in Figure 2D, and video reproduction in a normal successive reproduction mode is then started (step S45). Further, the system controller 21 starts an interval timer housed therein (step S46). When the interval timer reaches a predetermined time (for example, 5 seconds) (step S47), the magnetic head 14 is moved radially inwardly (or outwardly), by

one track, by the tracking motor 15 under the control of the tracking motor control circuit 16 (step S51). At this time, the track number indicated by the LCD 23 is incremented by one.

When the track mode of the next reproduced track is inputted (step S42) and it is determined that the track mode is not the video mode but the audio mode (step S43 and step S52), the "A" indication is lit and the "V" indication is extinguished as shown in Figure 2E (step S53). Then, an audio reproduction in the normal successive reproduction mode is started (step S54). When the reproduction of the audio signal of the track is ended (step S55), the magnetic head 14 is moved radially inwardly (or outwardly), by one track, by the tracking motor 15 (step S51). At this time, the track number indicated by the LCD 23 is incremented by one.

When the track mode of the next reproduced track is inputted (step S42) and it is determined that the track mode is neither the video mode nor the audio mode but the AV mode (step S43, step S52 and step S59), the "A" and "V" indications are lit as shown in Figure 2F (step S60). Then, AV reproduction in the normal successive reproduction mode is started (step S61). When the reproduction of the audio signal of the track is ended (step S55), the magnetic head 14 is moved radially inwardly (or outwardly), by two tracks, by the tracking motor 15 (step S51). At this time, the track number indicated by the LCD 23 is incremented by two. Note that, in step S51, the magnetic head 14 is moved by two tracks when the track mode is the AV mode.

Such an operation is repeatedly carried out so that video signals, audio signals, or a pair of a video signal and an audio signal (AV signal) are read sequentially according to track number in a series of tracks, whereby normal successive reproduction is carried out.

Note, when the magnetic head 14 reaches the last track (the innermost track), the magnetic head 14 is moved back to the first track (the outermost track), whereby all of the tracks of the floppy

disk 11 are reproduced one after another.

Before the interval timer has sensed the predetermined time, if the exposure correcting switch 31 is again operated so that a command to stop the normal successive reproduction mode is sent (step S48), the normal successive reproduction mode is released, the "NORMAL" indication remains lit, and the continuous photographing indication is extinguished (step S12). Thereafter, the process goes to step S6.

If the trigger switch 32 is again operated before the interval timer has sensed the predetermined time, so that a command to stop the reproducing operation is issued (step S49), the continuous photographing indication is extinguished (step S13) and the reproducing operation is stopped (steps S7 through S10).

Further, if the exposure correcting switch 31 is again operated before the audio signal is ended, so that a command to stop the reproducing operation is issued (steps S55 and S56), the normal successive reproduction mode is released, the "NORMAL" indication remains lit and the continuous photographing indication is extinguished (step S12). Then the process goes to step S6.

If the trigger switch 32 is again operated before the audio signal is ended, so that a command to stop the reproducing operation is issued (step S57), the continuous photographing indication is extinguished (step S13) and the reproducing operation is stopped (steps S7 through S10).

During the normal successive reproduction operation, if it is determined in step S50 or S58 that the select switch 34 has been operated, the process goes to a video successive reproduction mode, as shown in Figure 3D. Note, in this embodiment, the select switch 34 is also used for designating the kind of signal to be reproduced, even though the select switch 34 was originally used to select a mode such as a recording, a reproduction, and an erasing of signal recorded in a floppy disk.

First, as shown in Figure 2G, the continuous photographing indication remains lit, the "V" indication is lit, and the "NORMAL" and "A" indications are extinguished (step S71). Then, the track mode of the reproduced track is inputted from the recording/reproducing circuit 17 to the system controller 21 (step S72), and when it is determined that the track mode is the video mode (step S73), video reproduction is carried out (step S74). The system controller 21 operates the interval timer housed therein (step S75). When the interval timer has checked a predetermined time (for example, 5 seconds) (step S76), the magnetic head 14 is moved radially inwardly (or outwardly) by one track (step S80). At this time, the track number indicated by the LCD 23 is incremented by one.

When the track mode of the next reproduced track is inputted (step S72) and it is determined that the track mode is the video mode (step S73), the video reproduction is carried out in the same way as described above (step S74). Namely, after a predetermined time is set to the interval timer (steps S75 and S76), the magnetic head 14 is moved radially inwardly (or outwardly) over the floppy disk 11 by one track (step S80). Conversely, if it is determined that the track mode is not the video mode (step S73), the magnetic head 14 is immediately moved to the next track (step S80).

This operation is repeatedly carried out so that, among a series of tracks of the floppy disk 11, only tracks in which a video signal is recorded are selected, whereby the video signals are successively read out, and thus the video successive reproducing operation is carried out.

Note, if the exposure correcting switch 31 is again operated before the interval timer has checked the predetermined time, to thereby command stopping of the successive reproduction mode (step S77), the successive reproduction mode is released, the "NORMAL" indication remains lit, and the continuous photographing indication is extinguished (step S12 of Figure 3A). Then, the process goes to

step S6.

If the trigger switch 32 is again operated before the interval timer has checked the predetermined time, to thereby command stopping of the reproduction (step S78), the continuous photographing indication is extinguished (step S13), and the reproduction is stopped (steps S7 through S10).

During the video successive reproduction, if the select switch 34 is operated (step S79 of Figure 3D), an audio successive mode is set. Accordingly, the "A" indication is lit and the "V" indication is extinguished at the LCD 23 (step S81), as shown in Figure 2H. Then, the track mode of the reproduced track is inputted (step S82), and when it is determined that the track mode is the audio mode (step S83), audio reproduction is started (step S84). When the audio reproduction of the track is completed (step S85), the magnetic head 14 is moved by the tracking motor 15 radially inwardly (or outwardly) over the floppy disk 11 by one track (step S89). At this time, the track number indicated by the LCD 23 is incremented by one.

When the track mode of the next reproduced track is inputted (step S82) and it is determined that the track mode is an audio mode (step S83), the audio reproduction is carried out in the same way as described above (step S84). Namely, after the audio reproduction is completed (step S85), the magnetic head 14 is moved radially inwardly (or outwardly) by one track (step S89). Conversely, if it is determined that the track mode is not the audio mode (step S83), the magnetic head 14 is immediately moved to the next track (step S89).

This operation is repeatedly carried out so that, among a series of tracks of the floppy disk 11, only tracks in which an audio signal is recorded are selected, whereby the audio signals are successively read out, and thus the audio successive reproducing operation is carried out.

Note, if the exposure correcting switch 31 is again operated before the audio reproduction is completed, to thereby command stopping of the successive reproduction (step S86), the successive reproduction mode is released, the "NORMAL" indication remains lit, and the continuous photographing indication is extinguished (step S12 of Figure 3A). Then, the process goes to step S6.

If the trigger switch 32 is again operated before the audio reproduction is ended, to thereby command stopping of the reproduction (step S87), the continuous photographing indication is extinguished (step S13), and the reproduction is stopped (steps S7 through S10).

During the audio successive reproduction, if the select switch 34 is operated (step S88 of Figure 3D), the AV successive mode is set. Accordingly, the "A" and "V" indications are lit at the LCD 23 (step S90), as shown in Figure 21. Then, the track mode of the reproduced track is inputted (step S91), and when it is determined that the track mode is the AV mode (step S92), AV reproduction is started (step S93). When the AV reproduction of a pair of tracks is completed (step S94), the magnetic head 14 is moved by the tracking motor 15 radially inwardly (or outwardly) by two tracks (step S98). At this time, the track number indicated by the LCD 23 is incremented by two.

When the track mode of the next reproduced track is inputted (step S91) and it is determined that the track mode is the AV mode (step S92), the AV reproduction is carried out in the same way as described above (step S93). When the reproduction of the audio signal of the track is ended (step S94), the magnetic head 14 is moved radially inwardly (or outwardly) by two tracks (step S98). If this track is not recorded in the AV mode (step S92), the magnetic head 14 is immediately moved to the next track (step S98). Note that, in step S98, the magnetic head 14 is moved by two tracks when the track mode is the AV mode.

This operation is repeatedly carried out so that, among a series of tracks, only a pair of tracks in which a video signal and

an audio signal, which form a pair, are selected, and the video signal and the audio signal forming a pair (the AV signal) are successively reproduced, and thus an AV successive reproduction is carried out.

Note, if the exposure correcting switch 31 is again operated before an audio signal is ended, so that a command to stop the successive reproduction is issued (steps S94 and S95), the successive reproduction mode is released, the "NORMAL" indication remains lit, and the continuous photographing indication is extinguished (step S12 of Figure 3A). Then the process goes to step S6.

If the trigger switch 32 is again operated before the audio signal is ended, so that a command to stop the reproduction is issued (step S96), the continuous photographing indication is extinguished (step S13) and the reproduction is stopped (steps S7 through S10).

During the AV successive reproduction, if the select switch 34 is operated (step S97), the process goes to the normal successive reproduction mode, and the "NORMAL" indication is lit (step S41 of Figure 3C).

Note, in the above embodiment, the continuous photographing indication denoting continuous photographing in the recording mode is used for indicating the successive reproduction, and the "A" indication and "V" indication used for denoting an audio signal and a video signal in the normal mode, respectively, are used for distinguishing the audio successive reproduction mode and the video successive reproduction mode. Exclusive indications denoting each mode separately may be provided, but this construction including the exclusive indications causes an increase in the size of the area of the LCD 23, which is disadvantageous. Accordingly, preferably indications used for other denotations are also used as in the above described embodiment.

Further, in the above embodiment, the exposure correcting switch 31 used for carrying out an exposure adjustment in a recording operation is also used for switching to the successive reproducing operation, and the select switch 34 used for switching to other functions is also used for switching the audio, video and AV successive reproduction modes. Exclusive switches can be provided for these purposes, but the use of one switch for more than one operation avoids an increase of the number of parts, reduces the amount of electrical wiring, lowers costs, and maintains the compact size of the device.

Although the embodiments of the present invention have been described herein with reference to the accompanying drawings, obviously many modifications and changes may be made by those skilled in this art without departing from the scope of the invention.

CLAIMS

1. A still video device in which a recording medium is mountable, said recording medium having a plurality of tracks in which different kinds of signals can be stored, said still video device comprising:

reproducing means for reproducing a signal recorded in a predetermined track of said recording medium;

designating means for designating a kind of signal recorded in said recording medium to be reproduced; and

control means for controlling said reproducing means so that, in a successive reproduction mode, said reproducing means successively reproduces a plurality of tracks storing a kind of signal designated by said designating means.

2. A still video device according to claim 1, further comprising commanding means for commanding said successive reproduction mode, said control means controlling said reproducing means, when said successive reproduction mode is commanded by said commanding means, to carry out a successive reproduction in which tracks storing the same kind of signal are successively reproduced.

3. A still video device according to claim 1 or 2, further comprising means for displaying a predetermined indication in said successive reproduction mode and another predetermined indication in a non-successive reproduction mode in which each track of said recording medium is non-successively reproduced.

4. A still video device according to any one of the preceding claims, wherein said kinds of signals include a video signal and an audio signal.

5. A still video device according to claim 4, wherein said reproducing means reproduces tracks which store only a video signal or only an audio signal, in said successive reproduction mode.

6. A still video device according to claim 4, wherein said reproducing means reproduces tracks which store a video signal or an audio signal, which signals correspond to one another, in said

succcessive reproduction mode.

7. A still video device comprising:

a disk in which a kind of signal recorded in each track is different;

reproducing means for reproducing a signal recorded in said disk;

moving means for moving said reproducing means to a predetermined track of said disk;

a first switch operable to command a successive reproduction mode in which several tracks of said disk are successively reproduced;

a second switch operable to designate a kind of signal recorded in said disk to be reproduced; and

means for controlling said moving means so that, when said successive reproduction mode is commanded by said first switch, said reproducing means is successively positioned at a plurality of tracks in which a signal of a kind designated by said second switch is recorded.

8. A still video device according to claim 7, wherein at least one of said first and second switches is also operable in a non-successive reproduction mode in which each track of said disk is non-successively reproduced.

9. A still video device according to claim 7, further comprising means for displaying a predetermined indication in said successive reproduction mode an in a non-successive reproduction mode in which each track of said disk is non-successively reproduced.

10. A still video device according to claim 7, wherein said kinds of signals include a video signal and an audio signal.

11. A still video device according to any one of claims 7 to 10, wherein said successive reproduction mode is cancelled if said first switch is operated during successive reproduction mode.

12. A still video device according to any one of claims 7 to 11,

wherein a different kind of signal from a signal being reproduced is reproduced if said second switch is operated during said successive reproduction mode.

13. A still video device in which a recording medium is mountable, said recording medium having a plurality of tracks in which different kinds of signals can be stored, said still video device substantially as hereinbefore described with reference to the accompanying drawings.

Published 1991 at The Patent Office, Concept House, Cardiff Road, Newport, Gwent NP9 1RH. Further copies may be obtained from Sales Branch, Unit 6, Nine Mile Point, Cwmfelinfach, Cross Keys, Newport, NP1 7HZ. Printed by Multiplex techniques ltd, St Mary Cray, Kent.